

FORM PT01449
(REV. 8-83)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

2574.008US0

SERIAL NO.

09/344,226

APPLICANT

Ronald H. Chiarello et al.

FILED

June 25, 1999

GROUP

1626

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

U. S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
Y0	A1	2 1 5 3 0 5 9	4/4/39	Eckert et al.			
	A2	2 2 4 2 5 7 2	5/20/41	Eckert et al.			
	A3	3 8 2 2 2 7 0	7/2/74	Reynolds			
	A4	3 8 4 9 0 6 5	11/19/74	Schmeidl			
	A5	3 9 3 2 4 1 5	1/13/76	Reynolds			

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS.? (YES/NO)
Y0	B1	9 6 / 3 6 7 2 9	11/21/96	WIPO			Yes
	B2	0 2 5 1 7 8 6	11/30/94	EPO			Yes

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

Y0	C1	Bauman et al., "A New Method for Fluorescence Microscopical Localization of Specific DNA Sequences by <i>in situ</i> Hybridization of Fluorochrome-labelled RNA," <i>Exp. Cell Res.</i> , 128, pp. 485-490, 1980. ✓
	C2	Belkum and Niesters, "Nucleic Acid Amplification and Related Techniques in Microbiological Diagnostics and Epidemiology," <i>Cell. Mol. Biol.</i> , 41 (5), pp. 615-623, 1995. ✓
	C3	Guatelli et al., "Isothermal, <i>in vitro</i> Amplification of Nucleic Acids by a Multienzyme Reaction Modeled after Retroviral Replication," <i>Proc. Natl. Acad. Sci. USA</i> , 87, pp. 1874-1878, 1990. ✓
	C4	Haugland, Richard P., "Long-wavelength Dyes," Chapter 1, Section 1.6 in <i>Handbook of Fluorescent Probes and Research Chemicals</i> , 6 th Edition, pp. 29-35, 1996. ✓
	C5	Haugland, Richard P., "Chemically Modified Nucleotides, Oligonucleotides and Nucleic Acids," Chapter 8, Section 8.2 in <i>Handbook of Fluorescent Probes and Research Chemicals</i> , 6 th Edition, pp. 157-161, 1996. ✓
	C6	Haugland, Richard P., part of "Enzymes, Enzyme Substrates and Enzyme Inhibitors," Chapter 10 in <i>Handbook of Fluorescent Probes and Research Chemicals</i> , 6 th Edition, pp. 201-229, 1996. ✓

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T. A. Soloia

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YD	A6	4	0	0	5	0	9	2	1/25/77	Reynolds			
	A7	4	2	9	0	9	5	5	9/22/81	Cincotta et al.			
	A8	4	3	3	6	1	8	6	6/22/82	Gargiulo et al.			
	A9	4	4	0	1	7	9	6	8/30/83	Itakura			
✓	A10	4	4	1	5	7	3	2	11/15/83	Caruthers et al.			

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YD	B3	0	2	5	2	6	8	3	1/13/88	EPO			Yes

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

YD	C7	Heid et al., "Real Time Quantitative PCR," <i>Genome Research</i> , 6, pp. 986-994, 1996. ✓ PFO
	C8	Holland et al., "Detection of Specific Polymerase Chain Reaction Product by Utilizing the 5' → 3' Exonuclease Activity of <i>Thermus aquaticus</i> DNA Polymerase," <i>Proc. Natl. Acad. Sci. USA</i> , 88, pp. 7276-7280, 1991. ✓
	C9	Hung et al., "Comparison of Fluorescence Energy Transfer Primers with Different Donor-acceptor Dye Combinations," <i>Analytical Biochemistry</i> , 255, pp. 32-38, 1998. ✓ PFO
	C10	Hung et al., "Energy Transfer Primers with 5- or 6-Carboxyrhodamine-6G as Acceptor Chromophores," <i>Analytical Biochemistry</i> , 238, pp. 165-170, 1996. ✓ PFO
	C11	Ioffe and Otten, "Studies in the Field of Rhodamine Dyes and Compounds Related to Them: XII. Diacetyl Derivatives of Rhodamine and Rhodol; The Structure of the Colorless Forms of Fluorane Dyes," trans. from <i>Zhurnal Organicheskoi Khimii</i> , 1 (2), pp. 336-339, February 1965, in <i>Journal of Organic Chemistry of the USSR</i> , 1 (2), pp. 326-329, February 1965. ✓ PFO
	C12	Ioffe and Otten, "Studies in the Field of Rhodamine Dyes and Compounds Related to Them: XIII. The Structure of the Colored Forms of Rhodamine and Rhodol," transl. from <i>Zhurnal Organicheskoi Khimii</i> , 1 (2), pp. 340-343, February 1965, in <i>Journal of Organic Chemistry of the USSR</i> , 1 (2), pp. 330-332, February 1965. ✓ PFO
✓	C13	Ioffe and Otten, "Studies in the Field of Rhodamine Dyes and Compounds Related to Them: XIV. Interconversion of the Colorless and Colored Forms of Rhodamine and Rhodol," translated from <i>Zhurnal Organicheskoi Khimii</i> , 1 (2), pp. 343-346, February 1965, in <i>Journal of Organic Chemistry of the USSR</i> , 1 (2) pp. 333-336, February 1965. ✓ PFO

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Y0	A11	4 5 5 7 8 6 2	12/10/85	Mangel et al.			
	A12	4 6 4 7 6 7 5	3/3/87	Mayer et al.			
	A13	4 6 6 8 7 7 7	5/26/87	Caruthers et al.			
	A14	4 6 8 3 1 9 5	7/28/87	Mullis et al.			
↓	A15	4 6 8 3 2 0 2	7/28/87	Mullis			

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- Y0 C14 Köster et al., "N-Acyl Protecting Groups for Deoxynucleosides: A Quantitative and Comparative Study," *Tetrahedron*, 37, pp. 363-369, 1981. ✓
- Y0 C15 Lawrence et al., "Sensitive, High-Resolution Chromatin and Chromosome Mapping In Situ: Presence and Orientation of Two Closely Integrated Copies of EBV in a Lymphoma Line," *Cell*, 52, pp. 51-61, 1988. ✓
- C16 Lee et al., "DNA Sequencing with Dye-labeled Terminators and T7 DNA Polymerase: Effects of Dyes and dNTPs on Incorporation of Dye-terminators and Probability Analysis of Termination Fragments," *Nucleic Acids Research*, 20 (10), pp. 2471-2483, 1992. ✓
- C17 Livak et al., "Oligonucleotides with Fluorescent Dyes at Opposite Ends Provide a Quenched Probe System Useful for Detecting PCR Product and Nucleic Acid Hybridization," *PCR Methods and Applications*, 4, pp. 357-362, 1995. ✓
- C18 Morré et al., "RNA Amplification by Nucleic Acid Sequence-based Amplification with an Internal Standard Enables Reliable Detection of *Chlamydia trachomatis* in Cervical Scrapings and Urine Samples," *J. Clin. Microbiol.*, 34, (12), pp. 3108-3114, 1996. ✓
- C19 Mullah and Andrus, "Automated Synthesis of Double Dye-labeled Oligonucleotides using Tetramethylrhodamine (TAMRA) Solid Supports," *Tetrahedron Letters*, 38 (33), pp. 5751-5754, 1997. ✓
- ✓ C20 Murakami et al., "Fluorescent-labeled Oligonucleotide Probes: Detection of Hybrid Formation in Solution by Fluorescence Polarization Spectroscopy," *Nucleic Acids Research*, 19 (15), pp. 4097-4102, 1991. ✓

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APPLICANT Ronald H. Chiarello et al.

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U. S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
Y0	A16	4 7 1 1 9 5 5	12/8/87	Ward et al.			
	A17	4 8 2 8 9 7 9	5/9/89	Klevan et al.			
	A18	4 8 6 8 1 0 5	9/19/89	Urdea et al.			
	A19	4 9 6 5 3 4 9	10/23/90	Woo et al.			
✓	A20	5 1 7 5 2 6 9	12/29/92	Stavrianopoulos			

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

Y0	C21	Nazarenko et al., "A Closed Tube Format for Amplification and Detection of DNA Based on Energy Transfer," <i>Nucleic Acids Research</i> , 25 (12), pp. 2516-2521, 1997. ✓
	C22	Pinkel et al., "Fluorescence <i>in situ</i> Hybridization with Human Chromosome-specific Libraries: Detection of Trisomy 21 and Translocations of Chromosome 4," <i>Proc. Natl. Acad. Sci. USA</i> , 85, pp. 9138-9142, 1988. ✓
	C23	Rudkin and Stollar, "High Resolution Detection of DNA-RNA Hybrids <i>in situ</i> by Indirect Immunofluorescence," <i>Nature</i> , 265, pp 472-473, 1977. ✓
	C24	Sanger et al., "Cloning in Single-stranded Bacteriophage as an Acid to Rapid DNA Sequencing," <i>J. Mol. Biol.</i> , 143, pp. 161-178, 1980. ✓
	C25	Schreier and Cortese, "A Fast and Simple Method for Sequencing DNA Cloned in the Single-stranded Bacteriophage M13," <i>J. Mol. Biol.</i> , 129, pp. 169-172, 1979. ✓
	C26	Schulhof et al., "The Final Deprotection Step in Oligonucleotide Synthesis is Reduced to a Mild and Rapid Ammonia Treatment by Using Labile Base-protecting Groups," <i>Nucleic Acids Research</i> , 15 (2), pp. 397-416, 1987. ✓
	C27	Smith et al., "Fluorescence Detection in Automated DNA Sequence Analysis," <i>Nature</i> , 321, pp. 674-679, 1986. ✓
✓	C28	Smith et al., "The Synthesis of Oligonucleotides Containing an Aliphatic Amino Group at the 5' Terminus: Synthesis of Fluorescent DNA Primers for Use in DNA Sequence Analysis," <i>Nucleic Acids Research</i> , 13 (7), pp. 2399-2412, 1985. ✓

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*EXAMINER INITIAL		DOCUMENT NUMBER				DATE	NAME		CLASS	SUB CLASS	FILING DATE
YD	A21	5 2 1 0 0 1 5	5/11/93	Gelfand et al.							
	A22	5 2 3 1 1 9 1	7/27/93	Woo et al.							
	A23	5 2 4 1 0 6 0	8/31/93	Engelhardt et al.							
	A24	5 3 2 8 8 2 4	7/12/94	Ward et al.							
	A25	5 3 7 1 2 4 1	12/6/94	Brush							
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)											
YD	C29	Theisen et al., "Fluorescent Dye Phosphoramidite Labelling of Oligonucleotides," <i>Nucleic Acids Symposium Series</i> , 27, pp. 99-100, 1992. ✓									
	C30	Theisen et al., "Fluorescent Dye Phosphoramidite Labelling of Oligonucleotides," <i>Tetrahedron Letters</i> , 33 (35), pp. 5033-5036, 1992. ✓									
	C31	Tyagi and Kramer, "Molecular Beacons: Probes that Fluoresce Upon Hybridization," <i>Nature Biotechnology</i> , 14, pp. 303-308, 1996. ✓									
	C32	Tyagi et al., "Multicolor Molecular Beacons for Allele Discrimination," <i>Nature Biotechnology</i> , 16, pp. 49-53, 1998. ✓									
	C33	Walker et al., "Isothermal <i>in vitro</i> Amplification of DNA by a Restriction Enzyme/DNA Polymerase System," <i>Proc. Natl. Acad. Sci. USA</i> , 89, pp. 392-396, 1992. ✓									
	C34	Walker et al., "Strand Displacement Amplification - an Isothermal, <i>in vitro</i> , DNA Amplification Technique," <i>Nucleic Acids Research</i> , 20 (7), pp. 1691-1696, 1992. ✓									
	C35	Yu et al., "Cyanine Dye dUTP Analogs for Enzymatic Labelling of DNA Probes," <i>Nucleic Acids Research</i> , 22 (15), pp. 3226-3232, 1994. ✓									
	C36	Langer et al., "Enzymatic Synthesis of Biotin-labeled Polynucleotides: Novel Nucleic Acid Affinity Probes," <i>Proc. Natl. Acad. Sci. USA</i> , 78 (11), pp. 6633-6637, 1981. ✓									
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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE			
Y0	A26	5 4 4 2 0 4 5	8/15/95	Haugland et al.		
	A27	5 4 4 9 7 6 7	9/12/95	Ward et al.		
	A28	5 4 7 6 9 2 8	12/19/95	Ward et al.		
	A29	5 4 8 9 6 7 8	2/6/96	Fodor et al.		
	A30	5 6 9 8 4 1 1	12/16/97	Lucas et al.		

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

Y0	C37	Acrōs Organics, product list and information on Rhodamine-based compound, 1995-1996 Catalog, pp. 1513-1515.
	C38	Amersham Pharmacia Biotech, "Fluorescent Nucleotides," Catalogue '98, p. 127, 1997/1998
	C39	Boehringer Mannheim, "Nucleotides for Non-radioactive Labeling," 1997 Biochemicals Catalog, pp. 90-93, 1997.
	C40	The Society of Dyers and Colourists, entries re xanthenes as relates to rhodamines and rhodols, Colour Index, 3rd Edition, pp. 64 and 4419-4430, 1971.
	C41	Life Technologies, GIBCO BRL Products & Reference Guide, pp. 17-2 through 17-5, 1997/1998.
	C42	PE Biosystems, "User Bulletin: ABI 392/4 Nucleic Acid Synthesizers," re Synthesis and Purification of Fluorescently Labeled Oligonucleotides Using Dye Phosphoramidites (User Bulletin No. 78), Worldwide Web site at http://www2.perkin-elmer.com/ab/techsupp/doclib/nasynth/multi/ub/html/UB78.html , 8 pages, 1998.
↓	C43	PE Biosystems, "DNA Synthesis FAQs" (Frequently Asked Questions), Worldwide Web site at http://www2.perkin-elmer.com/ab/techsupp/dnasyfaq.html , 9 pages, 1998.

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Y0	A31	5	7	3	3	7	1	9	3/31/98	Jaffe et al.		
	A32	5	7	7	6	7	2	0	7/7/98	Jaffe et al.		
	A33	5	8	4	6	7	3	7	12/8/98	Kang		
	A34	5	0	4	7	5	1	9	9/10/91	Hobbs, Jr. et al.		
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)												
Y0	C44	Peninsula Laboratories, Inc., Product information on "5' Labeling Products," (Cat. No. N4345), 1992. ✓										
	C45	Peninsula Laboratories, Inc., Product information on "3' Labeling Products," (Cat. No. N4340), 1991. ✓										
	C46	Peninsula Laboratories, Inc., Product information on "Modified Thymidine Labeling Products," (Cat. No. N4082), 1994. ✓										
	C47	Research Organics, Product information on rhodamines, pp. 325-329, undated. *										
	C48	Glen Research, "Rhodamine Labelling," from 1998 Catalog (Products for DNA Research), p. 39, 1998. ✓										
	C49	"New Fluorescent Reagents - TAMRA-dT, DABCYL-dT," <i>The Glen Report</i> (company bulletin of Glen Research), 11 (1), p. 5, July 1998. ✓										
✓	C50	Venkataraman, K., "Chapter XXIV: Xanthene and Acridine Dyes," <i>The Chemistry of Synthetic Dyes</i> , 2, Academic Press, NY, pp. 740-760, 1952. ✓										
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